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WILDLIFE SERVICES—GUAM

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USDA Resolves Wildlife Conflicts in Guam

Every day, Guam residents, industries, organizations, and agencies call on Guam Wildlife Services (WS) for expertise in protecting agriculture, property, natural resources, and human health and safety from damage or threats posed by wildlife. Managed by professional wildlife biologists, WS responds with effective and humane strategies to resolve wildlife conflicts.

The brown tree snake (BTS), a non-native, invasive species on the island of Guam, has caused severe economic and environmental problems and public health concerns for the island's residents and industries. The BTS has eliminated most of Guam's native forest birds and lizards. This dramatic wide-scale destruction of native species is unprecedented in modern ecological history. Snakes contacting electric power transmission lines have caused frequent power outages, resulting in millions of dollars in damage and lost revenue. Livestock producers have suffered losses from snakes preying on poultry and other small animals. Children and people sensitive to the snake's mild venom are threatened by the large number of snakes inhabiting urbanized areas on the island. Even more significantly, the BTS has the potential to expand its range by "hitchhiking" in air and sea cargo. The abundance of snakes on



Guam, coupled with the tendency of the BTS to hide in cargo, creates a significant threat to the biodiversity and economic security of the tropical Pacific.

At the inception of WS' BTS project in 1993, little was known about the dynamics of the BTS biology and its impact on Guam. More than 9 years of cooperative research and direct assistance by WS has led to the development of effective management techniques.

Top 5 Major Assistance Activities:

- Interdiction activities to prevent the inadvertent spread of the BTS to other Pacific Islands, Hawaii, and the U.S. Mainland
- Protecting endangered species including the Mariana gray swiftlet, Mariana crow, and the Mariana fruit bat
- Species restoration activities involving large-scale BTS control from areas designated for the re-establishment of the Guam rail and Micronesian kingfisher
- Protection of Guam's power infrastructure, including BTS management at 13 individual substations located throughout the island
- Coordination of initial design and monitoring processes for snake barriers at ports of exit

Top WS Research Projects of Interest to Guam:

- On-going research and development supported by the Guam WS program
- BTS trap design and strategies
- Development of oral toxicants
- Evaluation of other BTS management methods

Applying Science & Expertise to Wildlife Challenges

WS offers information, advice, equipment, and materials that enable many people to resolve wildlife conflicts on their own. Often, this *technical assistance* can be provided over the phone. WS also provides on-site expertise, or *direct assistance*, to manage complex wildlife problems that cannot be safely resolved by others. To support this effort, WS conducts *scientific research* across the Nation to develop answers to new problems posed by wildlife and to ensure the program benefits from the latest science and technology. While WS conducts a wide range of operational and research activities, a few in-depth examples are provided to highlight WS' role in endangered species protection and restoration and BTS interdiction.

Protecting Endangered Species and Species Restoration—

The role of WS in endangered species protection and restoration on Guam continues to develop. In cooperation with the U.S. Fish

and Wildlife Service (FWS), the Guam Division of Aquatic and Wildlife Resources (DAWR), and the U.S. Navy, WS is helping to protect the remaining 250 endangered Mariana gray swiftlets that reside in three caves located on Naval property. Beginning in 1999, Phase I of the project demonstrated that the BTS can reach, and therefore, prey upon swiftlets that nest and roost on the cave ceilings. Results from Phase II, completed in 2000, however, suggested that altering cave walls to prevent snakes from climbing them, in conjunction with active snake removal in the caves, would be too disturbing to the swiftlets. WS, in consultation with FWS and DAWR, determined the best approach to protect the remaining Guam swiftlets would be to trap snakes near the caves and to construct a permanent snake barrier around the cave entrances.

The second endangered species project, initiated in April 2000, is being conducted in cooperation with Andersen Air Force Base (AAFB) and the Department of Defense. WS operates approximately 1,000 traps to remove snakes in the Munitions Storage Area (MSA) at AAFB. The work supports efforts to recover native Guam wildlife, including Federally endangered Mariana crows, Guam rails, and Micronesian kingfishers. Beginning in May 2001, WS began integrating the use of acetaminophen, which research has shown to be an effective oral toxicant for the BTS. As of Nov. 1, 2002, nearly 7,000 snakes have been removed from the MSA through the use of traps and toxicants.

Brown Tree Snake Interdiction—WS works on Guam to keep the BTS from reaching other destinations. Since the inception of the BTS project in 1993, WS staffing on Guam has grown to 41 full-time employees, including 13 canine teams, and 4 additional employees working at a trap manufacturing shop in Washington. Work is concentrated at all commercial and military air and sea ports of exit, as well as 17 commercial freight forwarding warehouses. BTS populations around cargo and port facilities are reduced using specially designed snake traps and by hand-capturing snakes along fences. Specially trained detector dogs are also used to inspect outbound cargo for any snakes that might have made their way into shipments bound for Hawaii, other Pacific Islands, or the U.S. Mainland. WS' specialists are available at all

times to conduct snake inspections. In addition, WS has an active public education campaign consisting of videos, brochures, and live demonstrations. Since the project began, WS has removed an average of 4,500 snakes a year from Guam's ports of exit.

Looking to the Future

The primary focus of the WS program on Guam continues to be the BTS. While current research and operational activities have been extremely successful, the magnitude and complexity of this operational work creates significant challenges. The administrative needs associated with the BTS program are increasing as the program continues to expand in scope. Concerns regarding programmatic infrastructure must be addressed if WS is to succeed in preventing the escape of the BTS from Guam.

Guam Wildlife Services Funding

In addition to receiving federally allocated funds, WS also receives money from cooperators; such as producers; private individuals; businesses; and other Federal, State, and local government agencies who have a vested interest in the program. In most cases, these cooperators need help to resolve wildlife damage problems or they play a role in wildlife damage management.

